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The Senegal Valley Authority: A Unique Experiment in International River Basin Planning

THEODORE PARNALL* and ALBERT E. UTTON**

International organizations that can effectively deal with problems of resource management may no longer be utopian fantasies spun out on long nights by lawyers and development experts. Just as the proliferation of these organizations was the phenomenon of the three decades following World War II, rendering these frequently cumbersome organizations capable of effective decisionmaking may prove to be the phenomenon of the next thirty years.

Those countries possessing mineral resources necessary to the economies of the Developed World have received a dramatic lesson in the effectiveness of international cooperation from the activities of the Organization of Petroleum Exporting Countries. The recent activities of l'Organisation Pour la Mise en Valeur du Fleuve Senegal¹ may soon afford another valuable lesson with respect to an even older resource—water.

The African drought which began in 1968 has irreparably altered life in the Sahel zone of the continent. Estimates of the death toll ranged to well over a hundred thousand by late 1973. Lake Chad, once covering 9,000 square miles, is now composed of three small lakes with a total area of only 3,000 square miles, and one fishing village is now

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Views and opinions expressed herein are those of the authors, and are not to be attributed to any organization with which the authors have been or are associated.

¹ We have loosely translated l'Organisation Pour la Mise en Valeur du Fleuve Senegal as the Senegal Valley Authority in order to stress the decisionmaking capability of the organization. The organization is hereinafter referred to as the OMVS.

eighteen miles from the shore. Nomadic tribes such as the Puel and the Tuareg are being forced into relocation camps as the Sahara claims more and more pasture land each year.² Drought conditions in Ethiopia were so severe that they constituted a major factor in the ousting of the legendary fifty-year imperial rule of Haile Salassie, and in 1973 the crop yield in the Senegal Valley dropped from a high of 130,000 hectares to 15,000 hectares.

While there may be little that international cooperation and organization can do about making rain, effective river basin management can at least lessen the impact of recurrent drought in arid regions. River basin organizations may provide means for watershed protection and management, grazing and cropland improvement, drainage measures such as salinity control, and the like, in addition to providing a means for navigation and hydroelectric power planning. Nevertheless, even though multipurpose planning of an entire river basin is now recognized as the best means to develop a river's water resources,³ there were formerly few, if any, successful models of an adequate international institutional framework. An overdeveloped sense of national sovereignty seemed to prevent the establishment of effective international river basin organizations. Indeed, the inability of river basin organizations to make decisions and to draw up resource management plans that have at least some binding effect on the member basin states is probably the single most important weakness of the majority of international river organizations. One commentator has noted:

The emergence of the river basin as the physical framework of international cooperation in utilizing transboundary waters extended the operative area of international water administration without, however, changing its function. Thus, the jurisdiction of the Nile, Indus, and La Plata commissions . . . enhances an entire basin or the major part of one but, like areally more limited commissions, they have authority only to advise and supervise the execution of waterworks already approved. . . . [I]t is still utopian to expect the emergence of supra-national drainage basin authorities. . . .⁴

² Wall St. Journal, May 22, 1974, at 1, col. 6. See also, e.g., Vol. LXIX, Dept. of State Bull. p. 380 (Sept. 17, 1973). Rosenthal, *The Edge of Catastrophe*, in REPORT ON THE WAR ON HUNGER (Agency for International Development, August 1973).

³ See, e.g., A.H. GARRETSON, R.D. HAYTON & C.J. OLMSTEAD, *THE LAW OF INTERNATIONAL DRAINAGE BASINS* 164-66 (1967); L. TECLAFF, *THE RIVER BASIN IN HISTORY AND LAW* 7-14 (1967); REPORT OF THE PANEL OF EXPERTS TO THE SECRETARY GENERAL OF THE UNITED NATIONS ON INTEGRATED RIVER BASIN DEVELOPMENT (rev. ed. 1970) (hereinafter cited as U.N. REPORT).

⁴ Teclaff, *The Influence of Recent Trends in Water Legislation on the Structure and Functions of Water Administration*, 9 LAND & WATER L. REV. 1, 3-4 (1974).

The OMVS is a unique exception to this assessment. The three West African governments of Mali, Mauretania, and Senegal (the "Member States") are engaged in an experiment in international organization that is not only following the most advanced concepts of integrated river basin development,⁵ but which may also afford a lesson in cooperation on a broad scale. This article is intended as a description of the organizational history and structure of the OMVS and a comparison with those of other international river commissions with similar goals.

GENERAL BACKGROUND

Geography of the Basin

The four Senegal River Basin states are Guinea, Mali, Mauretania, and Senegal. The tributaries of the one thousand mile river flow from the rain-soaked highlands of Guinea and upper Mali before joining near Bakel, Senegal, to serve as an irregular border between Mauretania and Senegal's arid plains. The river drains an area of approximately 300,000 square kilometers. Of its major tributaries, two arise in Guinea's 2,400 foot Fouta Djallon highlands—the Bafin, which flows north in a series of rapids, and the Faleme, which flows from the Western slope north to form the Senegal, at Bakel. The Bakoy has its source in the Malian Mountains which serve as the dividing mark between the Niger and Senegal Basins.

The climatic conditions in the Senegal Basin vary dramatically. Average rainfall in the upper basin (Guinea and upper Mali) is 78 inches; that in the lower basin states is 11 inches. The river's flow, dependent on the seasonal rains, is also highly erratic. During the months of April and October, the rains fall in the upper basin, causing the middle and lower basins (Bakel to Dagana) to receive floods between July and December. At Bakel, the flow varies as much as from 3,500 cubic meters per second in September to ten cubic meters per second in May. Very little, if any, utilization of the river or the tributaries for agricultural purposes is made until it reaches Bakel. Of the estimated 640,000 hectares of total arable land, it is estimated that

⁵Indeed, the OMVS is almost a text book example of an international river basin organization, but for the fact that one of the basin states, Guinea, has not yet joined the organization. Article 15 of the Statutes and Article 18 of the Convention-OMVS provide for her joining the organization if she so desires. See generally U.N. REPORT; INTERNATIONAL DRAINAGE BASINS 138-46; Menon, *The Lower Mekong River Basin—Some Proposals for the Establishment of a Development Authority*, 6 INT'L. LAW. 796, 802-07 (1972); Utton, *International Water Quality Law*, 13 NATURAL RESOURCES J. 282 (1973).

510,000 lie between Bakel and Dagana, and 130,000 in the delta below Dagana.⁶

The irregular flow of the Senegal and its importance as the major water resource for the peoples of the lower basin have prompted agricultural planners and engineers from the French colonial era to the present to look for ways to develop its potential as one of the significant rivers of Africa.⁷ At the present time, of the three uses desired by the basin states—hydroelectric power, navigation, and agriculture—only agriculture is of any consequence. The river can be navigated from Saint-Louis to Kayes (590 miles) only during the flood months. It is navigable by small boats all year between Saint-Louis and Boghe (240 miles).

Agriculturally, the peoples of the Senegal Valley practice flood recession and a limited amount of dry-land (rain cropping) agriculture. The surface area cultivated by the flood recession method varies with the amount of rainfall in the upper basin. In good years, approximately 130,000 hectares can be farmed; in bad years, such as 1973, the number of hectares could fall to as low as 15,000. Dry land farming (negligible in 1973) traditionally produces very low yields.⁸

Organizational History of the OMVS

The treaties pursuant to which the OMVS was created are La Convention Relative au Statut du Fleuve Senegal (hereinafter referred to as the Statute) and La Convention Portant Creation de l'Organisation Pour la Mise en Valeur du Fleuve Senegal (hereinafter the Convention-OMVS) which were both signed by the heads of state of each of the three Member States on March 11, 1972. The ratification documents necessary to put the treaties into effect were deposited by Senegal and Mauretania on October 13, 1972. The ratification by Mali was accomplished on November 25, 1972.⁹

⁶ The most recent synthesis study, prepared for the OMVS by a French firm pursuant to a contract with the United Nations Development Programme (UNDP), indicates that there may be additional agricultural potential in other areas of the upper basin if pump-irrigation methods can be effectively utilized.

⁷ E.g., in 1947 the Mission d'Amenagement de Senegal initiated a study of irrigation projects near Richard Toll, Senegal, and the feasibility of using the Felon and Gonina Falls for the production of hydroelectric power. See also text accompanying note 56 *infra*.

⁸ See Bornstein, *The Organization of Senegal River States*, 10 J. OF MOD. AFRICAN STUDIES 267 (1972); Teclaff, *supra* note 2, at 176-79.

⁹ OFFICIAL JOURNAL OF THE REPUBLIC OF SENEGAL, July 26, 1972, Law 72-71, 72-73; OFFICIAL JOURNAL OF THE ISLAMIC REPUBLIC OF MAURETANIA, July 18, 1972, Law 72-140. The OFFICIAL JOURNAL OF THE REPUBLIC OF MALI containing the ratification was not available, as of the date of this article, at the Centre de Recherches d'Etudes et de Documentation sur les Institutions et la Legislation Africaines (CREDILA) at the Law Faculty of the University of Dakar. Mali's due ratification documents have, however, been submitted to the OMVS.

The OMVS represents the third consecutive attempt by its Member States to create an organization capable of dealing with the problems of regularizing the Senegal River.

In 1963, Guinea, Mali, Mauretania, and Senegal, following a widespread general acceptance of the concept of joint development of international river basins and a rash of newly created river basin authorities of greater or lesser effectiveness, created a new international agency called the Comité Inter-Etats Pour l'Amenagement du Bassin du Fleuve Senegal (Intergovernmental Committee for the Development of the Senegal River Basin). This Committee was established by the Convention Relative a l'Amenagement General du Bassin du Fleuve Senegal, signed by the four states in Bamako on July 26, 1963 (the 1963 Convention). It set up the basic organization of the Committee, declared the Senegal to be an international river within the framework of the treaty, and was the first basin authority to be given the power to approve projects of the basin states. A second agreement, the Convention Relative au Statut du Fleuve Senegal (the 1964 Convention), signed in Dakar on February 7, 1964, clarified the powers of the Committee. The Committee was primarily interested in the management and development of the Senegal River and following its organization it began to conduct studies on various aspects of integrated river basin development.

The four states decided to expand the Committee's jurisdiction to encompass the entire economic development of the sub-region in February 1968, and on March 24, 1968, the organization was formally reorganized as the Organisation des Etats Riverains du Senegal (O.E.R.S.), pursuant to the Statut de O.E.R.S. (the OERS Statute). The O.E.R.S. was meant to be a step towards pan-African unity with the goal of regulating all economic, social, cultural and even military activities, of the four states. Following, and perhaps due in large part to, Guinea's internal political difficulties in 1971, the goals of the O.E.R.S. were frustrated by their own broad scope, and a lack of funds to finance the proposed projects.¹⁰ The organization was formally dissolved on March 11, 1972, the date of the establishment of the OMVS.¹¹

¹⁰ Bornstein, *The Organization of Senegal River States*, 10 J. OF MOD. AFRICAN STUDIES 267 (1972).

¹¹ The OERS was effectively dissolved in conformity with its constitutive document. Article 38 of the OERS Statute provided that a Member State might withdraw by giving one year's notice, with the condition that such withdrawal did not affect prior obligations. On March 11, 1972, all Member States of the organization, with the exception of Guinea, denounced the OERS Statute as well as the 1963 and 1964 Conventions. As Article 14 of the 1964 Convention, which was at that time the fundamental constitutive document, allowed for its denunciation after an expiration of five years from its effective date (with a provision for one year's notice), all three Member States appear to have withdrawn from

A STRUCTURAL DESCRIPTION OF THE OMVS

Generally

Unlike the majority of international river organizations,¹² and unlike its two predecessor organizations,¹³ the formal authority of the OMVS extends beyond offering advice concerning projects that must be approved on the national level in order to be implemented. While purely national interests are afforded the safeguard of requiring unanimity for binding decisions, two of the three organs of the OMVS have been vested with the power to create obligations binding on the three Member States. This power, together with the administrative flexibility of the organization's secretariat¹⁴ and the organization's foundation upon an advanced general theory of international river basin law,¹⁵ makes it formally possible for the OMVS to make decisions in accordance with the most up-to-date technical data available, through internal resolutions that may be revised if later data indicates that revision would be appropriate. Such flexibility in decisionmaking is in marked contrast to the more cumbersome process of research, international discussion of technical problems, referral to national legislatures, and formal international agreement that is prevalent among other international river organizations.¹⁶

Member States may withdraw from the Organization by giving six months' notice, but such withdrawal does not affect obligations undertaken by the OMVS prior to the giving of notice.¹⁷ Withdrawal,

the O.E.R.S. and, by denouncing the constitutive document in conformity with its provision, caused the de facto and de jure dissolution of the O.E.R.S.

¹² See text accompanying note 63 *infra*.

¹³ While both the O.E.R.S. and the Committee were given the authority to approve national projects that would significantly affect the river and its tributaries, neither organization had the power to create binding obligations for its Member States.

¹⁴ See text accompanying notes 45-55 *infra*.

¹⁵ While it has been suggested that the Member States have, in ratifying the Convention-OMVS and the Statute, adopted the theory of limited territorial sovereignty, it would seem that the language of these two agreements goes beyond this. The Statute's prefatory words express the desire for the "coordinated development of the Senegal River and the rational utilization of its natural resources," and in Article II of the Statute this desire for integrated development is repeated: "The States of Mali, Mauretania, and Senegal solemnly affirm their desire to establish a close cooperation for the rational utilization of the resources of the Senegal River and to guarantee freedom of navigation and equal treatment for persons using the River." Article 2 of the Statute provides for "equality of treatment for users of the River" and in Article 4 the Member States have adopted the advanced idea of prior consultation and approval for any project affecting the River. Article 11 of the Statute provides for the creation of a regional organization charged with implementation of the treaty, and the Convention-OMVS establishes an authoritative organization for river basin development. This is in accordance with the community theory of international river basin law in its most advanced form.

¹⁶ See text accompanying note 69 *infra*.

¹⁷ Convention-OMVS, Article 21.

moreover, does not necessarily affect rights and obligations under the Statute which can be denounced by a Member State only after a period of ten years following its effective date.¹⁸

Jurisdiction and General Powers of the OMVS

The treaty provision pursuant to which the OMVS was formed is Article 11 of the Statute. Since this article provides for the creation of an organization to carry out the purposes of the statute, the "primary jurisdiction" of the OMVS includes all matters which relate to the development of the Senegal River within the political boundaries of the Member States. However, Article First of the Convention-OMVS provides that the organization is also charged with "any technical or economic mission that the Member States collectively desire to confer upon it."¹⁹ This appears to extend the general jurisdiction of the OMVS to areas other than river development, without limitation.²⁰ As for the general powers of the OMVS, the following are the most significant: (1) the power to create obligations which are binding on the Member States;²¹ (2) the power to promote and coordinate both studies and working projects for the development of the river;²² (3) the power to accept grants as well as technical assistance;²³ and (4) the power to borrow money.²⁴ These two latter powers were expressly given to the OMVS by an amendment to the Convention-OMVS dated April 13, 1973.

Specific Powers and Procedures of the Institutions of the OMVS

There are three institutions which are empowered to act on behalf of the OMVS: the Conference of Heads of State and Government (the Conference), the Council of Ministers (the Council), and the Office of the Secretariat General. Inasmuch as the Conference has no regularly scheduled meetings, the following discussion will stress the powers and procedures of the two permanent organs of the organization. With regard to the Conference, however, it is important to note that:

—it must act with the unanimity of its members,²⁵

¹⁸ Statute, Article 17.

¹⁹ Author's translation.

²⁰ The OMVS has, to the present, not been significantly involved in projects other than river basin development. In view of the political difficulties inherent in an attempt to integrate broadly the political, economic and social sectors of a group of states, this limitation appears well advised.

²¹ Convention-OMVS, Articles 5 & 8.

²² Convention-OMVS, Article 1(2).

²³ Convention-OMVS, Article 1.

²⁴ *Id.*

²⁵ Convention-OMVS, Article 4, Bylaws of the Conference, Article 4.

- it is the highest decisionmaking institution within the organization,²⁶ and
- it decides questions of general economic policy and the extent of the organization's jurisdiction.²⁷

Moreover, its decisions, as well as those of the Council, become binding obligations of the Member States.²⁸ According to the Bylaws of the Conference, Member States are obligated to attend all sessions of the Conference.²⁹

The Convention-OMVS gives the Council broad powers with a view toward assuring an equitable and efficient development of the River.³⁰ The Council is the decisionmaking organ of the OMVS, charged with the responsibility of defining the priorities for development projects. It has the power to authorize the acceptance of loans and grants³¹ as well as to apportion the fiscal responsibilities of each Member State to the Organization.³² The single most important aspect of the Council's relationship to the Member States is that, in the event the Council makes a decision, this becomes a binding obligation of the Member States by virtue of Article 8 of the Convention-OMVS.

Thus, the Council has the power to authorize projects, arrange for financing, and apportion the responsibility for financing such projects, thereby binding the Member States to the commitment. It should be noted that the binding effect of these obligations may extend even beyond a State's membership in the OMVS if such obligations were incurred prior to withdrawal.³³

The Council meets annually, unless called into special session by one of the Member States.³⁴ Attendance at both regular and special sessions is mandatory.³⁵ The requirement of unanimous attendance and unanimous vote in order for the Council to make any decision is stressed at many points both in the Convention-OMVS and in the Bylaws of the various organs.³⁶ This requirement of unanimity of all the Member States prior to the undertaking of projects would seem to avert

²⁶ Convention-OMVS, Article 3.

²⁷ *Id.*

²⁸ Convention-OMVS, Article 5.

²⁹ Bylaws of the Conference, Article 4.

³⁰ Convention-OMVS, Article 8.

³¹ Convention-OMVS, Articles 1 & 8.

³² Convention-OMVS, Article 8; Financial Bylaws, Article 2.

³³ Convention-OMVS, Article 21.

³⁴ Convention-OMVS, Article 10; Bylaws of the Council, Article 1. Since July 1972, the Council has averaged two meetings per year.

³⁵ Convention-OMVS, Article 10; Bylaws of the Council, Article 4.

³⁶ Convention-OMVS, Article 10; Bylaws of the Council, Articles 4 & 11.

any question of the organization's invasion of the sovereignty of any of the Member States.

Although the person selected by each Member State as its representative on the Council must be a Minister or a person of similar rank and prerogatives,³⁷ neither the Convention-OMVS, nor the Bylaws of the various institutions of the OMVS provide a method for the selection of the Ministers who make up the Council's membership. Moreover, no provisions in the aforesaid documents establish the duration of a Minister's appointment or the method for terminating such an appointment. The actual selection of the Representative on the Council therefore appears to be left to the discretion of each Member State.³⁸

The Convention-OMVS provides that the President of the Council³⁹ holds office for a period of two years (rotated among the Member States). He has the authority to represent the Council, with respect to all matters concerning the Senegal River, in its relations with international or national lending institutions.⁴⁰ He also has the power to negotiate and sign treaties in the name of the Member States with respect to the above matters as long as it is done within the directives of the Council.⁴¹

One limitation on the authority of the Council to undertake projects that would effectuate the purpose of the OMVS, aside from the requirement of unanimity, is contained in Article 14 of the Council's Bylaws, which were adopted by the Council on July 24, 1972. It provides:

Any general question of order of the Council's deliberations involving: (a) the necessity for a new orientation of the policy of cooperation and development of the OMVS other than that established by the Conference; (b) an absence of unanimity; (c) new financial undertakings of more than 100 million frs CFA, shall be submitted by the President of the Council to the President of the OMVS,⁴² who will determine within the limits of his powers the opportunity for

³⁷ Convention-OMVS, Article 8; Bylaws of the Council, Article 4.

³⁸ It will be apparent that the indefinite tenure and political nature of the Council's membership may be the weakest point in the institutional structure of the OMVS. With no fixed term of office, any Minister who fails to use his "veto" power on a matter not considered to be in the best interests (national, as opposed to regional; short term, as opposed to long term) of his own individual Member State would be subject to removal. However, although a decisionmaking group of professional river management experts with fixed terms, linked perhaps to the loan and grant agreements, might have advantages with respect to isolating such a group from national control and enabling it to sacrifice national for regional advancement, it is unlikely that decisions that were unpopular in a participating Member State would be long-lived.

³⁹ Convention-OMVS, Article 8; Bylaws of the Council, Article 4.

⁴⁰ Convention-OMVS, Articles 11 & 16.

⁴¹ Convention-OMVS, Article 16.

⁴² The Presidency of the OMVS is rotated among the three members of the Conference.

either resolving the question or of submitting it to the Heads of State of the Member States either directly or at the next session of the Conference of Heads of State.⁴³

It is unclear what exactly is meant by subsection (c) of this Article. Since the wording of the limitation is directed to "new financial undertakings of more than 100 million frs CFA," this could be interpreted as allowing the Council to approve any single project whose cost did not exceed the stated amount. On the other hand, it could also be interpreted as placing an annual total limitation on OMVS projects.

It is important to note that this financial limitation is found in the Bylaws of the Council and not in either the Statute or the Convention-OMVS. Thus, it is a limitation that the Council has placed on itself and may be removed by the Council by an amendment of its Bylaws.

The documents attesting to the due ratification of the Statute and the Convention-OMVS stated that these were in conformity with the constitutions of the ratifying Member States, thereby establishing the *de jure* existence of the OMVS. As the Convention-OMVS gives both the Conference and the Council the power to make decisions which operate as binding obligations of the Member States, it would seem that every firm decision, as opposed to a general policy statement, is made an obligation of the Member States, just as effectively as if the decision was contained in a separate treaty duly ratified by the Member States. Since duly ratified treaties in each Member State prevail over other laws,⁴⁴ internal laws which conflict or are inconsistent with the Council's decisions would appear to be superseded by such decisions. Member State or States having such conflicting or inconsistent laws would then appear to have the responsibility to revise their internal laws to conform to the Council's decision.

The Convention-OMVS provides that the executive powers of the organization are in the office of the Secretariat General, headed by the Secretary General who is appointed by the Council for a three-year renewable term.⁴⁵ Except in his country of origin, the Secretary General has the right of diplomatic privileges and immunities.⁴⁶ It is his re-

⁴³ Author's translation.

⁴⁴ CONSTITUTION OF THE ISLAMIC REPUBLIC OF MAURETANIA, art. 46; CONSTITUTION OF THE REPUBLIC OF SENEGAL, art. 79; OFFICIAL JOURNAL OF THE REPUBLIC OF MALI, Ordinance no. 1 (Provisional Constitution) November 28, 1968. The provisional Constitution of Mali contains no express provision to this effect, but implies the principle in several places.

⁴⁵ Convention-OMVS, Article 12.

⁴⁶ Convention-OMVS, Article 12 (as amended on April 13, 1973). The amendment appears to confer diplomatic privileges and immunities on other Agents of the Secretariat, as well.

sponsibility to implement the decisions made by the Council or by its President.⁴⁷ He prepares the budget for Council approval,⁴⁸ hires the personnel⁴⁹ (with the exception of his directors, who are named by the Council upon his proposal and an audit commissioner who is named by the President of the Council),⁵⁰ and serves as permanent secretary to the Council.⁵¹ Among his more important duties are: (a) the gathering of data concerning the river,⁵² (b) the preparation of integrated studies and the suggestion of projects for the development of the resources of the river,⁵³ and (c) the coordination of the activities of his directors.⁵⁴ He also is charged with the responsibility of preparing, at the request of one or more of the Member States, feasibility studies relative to development of the river. By virtue of a resolution adopted by the Council in July 1972, the Secretary General is also authorized to negotiate for grants and loans.

The greatest potential for both coordinated planning and effective implementation is in the office of the Secretariat General. Acting pursuant to decisions made by the Council (and therefore binding obligations of the Member States), the office of the Secretariat could expand its staff to deal with problems of integrated planning, regulation of future agreements upon water allocation systems, and similar matters, as such problems arise.⁵⁵

The present staff of the Secretariat consists of approximately one hundred persons (excluding those persons "seconded" to the OMVS by organizations such as the United Nations Development Program, the Food and Agriculture Organization, and the United States Agency for International Development). This staff ranges from directors of

⁴⁷ Convention-OMVS, Article 12; Bylaws of the Secretariat, Article 2.

⁴⁸ Convention-OMVS, Article 13; Bylaws of the Secretariat, Article 18.

⁴⁹ Convention-OMVS, Article 13; Bylaws of the Secretariat, Article 4.

⁵⁰ Convention-OMVS, Article 12; Bylaws of the Secretariat, Article 4; Bylaws of the Council, Article 18.

⁵¹ Bylaws of the Secretariat, Article 12.

⁵² Convention-OMVS, Article 15.

⁵³ *Id.*

⁵⁴ Convention-OMVS, Article 12; Bylaws of the Secretariat, Article 2.

⁵⁵ An example of the operating procedures of the OMVS, as well as the relationship between the Council and the Secretariat, is the action taken by the Council in its July 1972 meeting with respect to the Delta Dam and the ports at Saint-Louis, Kayes and Ambidedi by Res. no. 9/72 CM-SD. Studies of the aforesaid projects were done for the OMVS under the Administration of the Secretariat. The Secretariat then compiled the reports for review by an ad hoc Commission of Experts composed of OMVS personnel as well as experts from each of the Member States. After their review, the Commission delivered a report to the Council which adopted the substance of the recommendations of such report. This example of the decision-making process of the OMVS, from the administration of the studies by the Secretariat, the review by a commission of experts, to the ultimate decision on policy by the Council, demonstrates the smooth functioning of which the organization is capable.

projects, soil scientists, and engineers, to stenographers, switchboard operators, and guards. The staff is located at the organization's headquarters in Dakar, the documentation center in Saint-Louis, as well as at the various agricultural project centers such as Guede, Senegal; Kaedi, Mauretania; and Same, Mali.

Coordination between National and Regional Planning

A "National Planning Committee for the Development of the Senegal River" has been established in each of the Member States at the instigation of the OMVS. Each Committee is composed of representatives of the various planning agencies of the Member States. The chief role of the committees appears to be to coordinate planning on the national level with the integrated development of the river basin. These three committees might also be able to coordinate such matters as issuance of water use permits in each of the Member States in accordance with any water use allocation formula established by the Council or by subsequent treaty. It is also possible that these committees will be used to assist in the adoption of any internal legislation necessary to implement the projects of the organization.

PLANNING EFFORTS

Research

Research concerning various aspects of the Senegal Basin has been going on for over one hundred years. More than 9,000 reports, articles, and texts dealing with subjects ranging from hydrology, agricultural development, ecology, and climatology, to customary law and social behavior, make the Senegal, on a cubic meter per second basis, probably the most studied river in Africa, if not the world. Senegal's major pre-feasibility and feasibility studies have been carried out by the OMVS and its predecessors since 1963. The most significant of these studies have been supported by the United Nations Development Program and its executing agencies such as the Food and Agriculture Organization.⁵⁶

Two major studies, one of which was completed in 1974, have investigated site location, agricultural possibilities including crop and livestock production, fisheries, forestry, mineral development, navigation, and hydroelectric energy, in addition to reviewing and synthesizing

⁵⁶ Among the development projects supported or assisted by UNDP are the following: a) feasibility survey for the regulation of the Senegal River; b) hydro-agricultural survey of the Senegal Basin; c) design of a system of water management in the upper Senegal River catchment; d) navigability and port study; e) development of agricultural research in the Senegal Basin; and f) documentation center.

prior development studies and developing computer models in order to allow evaluation of various options and methods for the Basin's development.

The OMVS Documentation Center for the Senegal Basin Development Program, also supported by UNDP, is located at Saint-Louis, Senegal. The Center is in the process of completing a sophisticated information retrieval system for the massive research already done on the basin; three volumes of an index, with entries for 4,000 of the 9,000 reports and reference works, are presently available.

Decisions of the OMVS

In July 1972, at the first meeting of the Council of Ministers of the newly formed OMVS, the first resolution to be adopted established the general policy for the first stage of development of the Senegal Basin. Confirming a resolution approved by the OERS in 1970, the Council agreed that their first stage of integrated development should be based on control of the River's flow at 300 cubic meters per second at Bakel, Senegal, along with the following projects:

- (1) Manantali (Buttress) Dam and Related Power Facilities
The purpose of this dam is to regulate the flow of the Senegal River by controlling the flow of the Bafing, its tributary, at Manantali, Mali. The dam's reservoir would have a storage capacity of approximately 9,000 billion cubic meters of water;
- (2) Delta (Anti-Salt) Dam
The purpose of this dam, located approximately 30 kilometers upstream from Saint-Louis, Senegal, would be to stop the salt water incursion in the Delta Region and to create an irrigation reservoir. It would be a "mobile" dam, whose gates would be left open until the river's flow decreased below 300-200 cubic meters per second;
- (3) A river-ocean port at Saint-Louis, Senegal;
- (4) A river port at Kayes, Mali; and
- (5) Improvements in stopping places along the river and of the river channel.

These projects, which are intended to permit the realization of the first stage of an integrated program for the simultaneous development of the Basin's agricultural, hydroelectric power, and river transportation potential, were based upon an analysis of the technical reports available to the Council, and a balancing of the interests of each of the three Member States. Mali could look forward to improved transportation facilities and an increased amount of hydroelectric power and Senegal and Mauretania could begin to plan for the increased utilization of the river for agricultural purposes. It is anticipated that

the first stage of development will permit the double-cropping of approximately 330,000 hectares in Mauretania and Senegal, as compared to only 6,000-7,000 hectares before regularization; the production of approximately 800 million kilowatt hours annually nine years out of ten, and the year-round navigation of the river from Saint-Louis to Kayes by boats drawing not more than 1.2 meters. Among the major expectations of the OMVS and its Member States regarding the production possibilities of the aforesaid capital projects are the following: 1) the Valley, now containing approximately 16 percent of the population of the three Member States, could absorb another 45 percent, many of whom would come from the drought-stricken areas; 2) the three Member States' national economies would be less vulnerable to climatic fluctuations; 3) the cost of energy would be reduced; and 4) the deterioration of the region's environment could be halted.

In May 1974, the OMVS Council of Ministers made several decisions which should have a significant effect on the future of the organization. Prior to that time, it was unclear whether, despite the authority granted by the underlying treaties, the organization would utilize its potential flexibility. It was unclear whether the organization would seek to exert managerial control over the major development projects or would limit its role to advising independent national units operating the projects. It was also unclear whether the projects would be owned jointly, by the OMVS, or by the state upon whose territory each project was located. A final question related to the extent of each Member State's financial obligation for the major projects. It was the decision of the Council of Ministers that the five above-mentioned major projects would be the joint property of the three Member States; the administration of the projects would be in the hands of special interstate or mixed national interstate agencies; that a permanent interstate Commission, under the control of the Secretariat General of the OMVS, would be created to regulate and control water utilization; and that the financial obligation incurred for the aforesaid projects would be guaranteed jointly by the three Member States. These unprecedented decisions concerning the multinational ownership and administration of the projects create the foundation for the establishment of the first international river basin authority with an executive capability.

*The Stages of the Basin's Development and Some Relevant
Decisions for Each Stage*

The management of an undertaking of the magnitude, scope, and critical importance of the Senegal River Basin requires coordinating

the efforts of a sizeable portion of the Member States' resources. The eventual scope of this endeavor is such as to affect many of the various development projects of the individual Member States. Thus, the success or failure of a river basin project will be related directly to the ability of the OMVS management to plan and coordinate activities.

Each stage of development should be defined, and certain established goals should be completed before the next stage, with its collateral goals, is initiated. Perhaps the most difficult, but at the same time the most important, planning function is to schedule and coordinate the inter-related activities of a number of more or less autonomous activities. In order to do this, the OMVS has to identify the decisions to be made, and determine when those decisions should be made.

Set forth as Figure 1 is at least one way of describing the outline of a decision network. This network is only for the first phase of development of the Basin, and is not based on a rigid timetable, but rather is divided into stages, with each stage envisioning a definite set of goals to be accomplished in the planning of an integrated river basin. Each set of goals should be accomplished before the next stage and the next set of goals can be attained. The goals are listed below each stage.

Vertically, four basic functions are listed which continue throughout the planning process. The functions are (1) data collection; (2) planning; (3) implementation; and (4) review and synthesis. At times these functions have occurred and will continue to occur simultaneously. For example, in Stage 1 the "planning functions" of the conceptualization of an integrated basin were being carried out by the OMVS and its predecessors at the same time that the "data collection function" was carried out.

Stage 1 basically required that the participants set broad objectives and parameters for the river basin organization. This stage of development has already been reached by the OMVS. Development in the Senegal River Basin is at present midway between Stages II and III. The participants have identified their common needs and problems and provided for solutions to many of them. The OMVS must now make decisions with respect to the identified legal problems and the specific duties and obligations of each Member State. Once the initial legal foundation is completed, then it will be possible to complete Stage III, which in addition to the initiation of construction of the dams requires both the identification and resolution of the specific legal problems of each regional project and a coordinated effort at the national level to pass national legislation which will support the efforts of the OMVS.

Figure 1

	STAGE I	STAGE II	STAGE III
DATA COLLECTION	Setting Broad Objectives	Formulate Criteria for Specific Plans	Optimum Plans and Schedule of Development
PLANNING	1. Basin Defined*	1. Synthesis of General Data*	1. Synthesis of Specific Data*
	2. Establishment of OMVS*	2. Basic Needs/Benefits Defined*	2. Specific Project Needs/Benefits Defined
IMPLEMENTATION	3. Ratification by Member States*	3. Goals Selected*	3. Specific Legal Problems Identified and Resolved
		4. General Legal Problems Identified*	4. Projects Scheduled†
		5. General Treaty on Duties/Obligations of each Member State*	5. Financing Arranged†
REVIEW		6. Resolutions for Treaty Establishing Water Allocation Among Member States	
		7. Resolutions Establishing OMVS or National Management of Projects†	
		8. Resolutions Establishing Financial Obligations of the OMVS and its Member States*	

* Accomplished

† Partially Accomplished

These efforts should go to establishing a precise legal framework for the common ownership and administration of the regional projects and the creation of viable water management offices that might work in conjunction with the OMVS to guarantee, for example, that allocations of water use conform to the guidelines established by the OMVS.

PROGNOSIS

No one can predict the outcome of the current efforts being made by Mali, Mauretania, and Senegal to establish an organization capable of realizing the integrated development of the Senegal Basin. Studies have been and continue to be made; the essential international agreements have been entered into and ratified; and at least partially successful attempts to secure the financing of the planned projects have been made. There is no indication that the leadership of the three States, in their ten-year history of seeking to cooperate in the development of the river, was other than sincere in establishing the OMVS. To date, every conflict of interests between the three States has been carefully analyzed and adjusted by the Council of Ministers. Yet, the doubt persists: Will it really work? The three West African States will have to do what no other group of states has yet managed to do, and it remains to be seen whether any truly effective international river authority can survive the political, economic, and social pressures inherent in river regulation. But it may be that a combination of factors favors a positive outcome: the geopolitics of the area, with land-locked Mali dependent upon the Saint-Louis ocean port and Senegal's rail system, and Mauretania and Senegal, because of the apparently cyclical droughts, dependent upon a regularized flow from Bakal in order to develop their agricultural potential, may leave the Member States no choice other than to continue their spirit of practical cooperation; the limited financial capability of the three Member States, necessitating the seeking of grants and loans for the OMVS from outside sources, may increase the relative authority of the organization; the limited manpower resources available for the creation and management of river basin development projects may lead to a continued and increased sharing of such resources. An important additional factor is that the three Member States have not yet developed their own national administrative infrastructures with fixed expectations concerning river development.

Furthermore, the OMVS and its Member States have recently made several crucial decisions: (1) the major development works will belong jointly to the three Member States, (2) administration of such projects will be in the hands of either international or mixed national-international agencies, and (3) the financing of the projects will be jointly guaranteed by the three Member States. If the future efforts of the OMVS provide examples of innovative cooperation as dramatic as those provided since its creation, an optimistic chapter in the history of international river law may be completed as the erratic flow of the

Senegal River is brought under control for the benefit of the Basin's inhabitants.

THE OMVS IN THE CONTEXT OF THE DEVELOPMENT OF
INTERNATIONAL RIVER LAW

From the vantage of the last third of the twentieth century, it can reasonably be said that international practice as evidenced by treaties, judicial decisions, the statements of individual scholars, and private and public international bodies, has rejected the notion of absolute territorial sovereignty,⁵⁷ under which it was asserted that a nation could do as it pleased with the waters of international river basins while they were within its borders. Instead, international practice has adopted the concept of *sic utere tuo*, requiring a basin state to use its part of an international drainage basin so as not to injure its coriparians. This has since been refined further by requiring an equitable balancing of the costs and benefits of proposed uses of water resources—the doctrine of equitable utilization. Thus, international law modified an inflexible *sic utere tuo*, which would proscribe any use which would damage a coriparian, in favor of a flexible balancing of the costs and benefits of each use so as to meet the needs of each coriparian state to the greatest extent possible while maximizing the benefits and minimizing the detriments to all coriparians. The doctrine of equitable utilization has received its highest expression in the so-called Helsinki Rules,⁵⁸ developed by the International Law Association. The I.L.A. elaborates:

The optimum goal of international drainage basin development is to accommodate the multiple and diverse uses of the co-basin States. The concept of equitable utilization of the waters of an international drainage basin has the purpose of promoting such an accommodation. Thus, uses of the waters by a basin State that cause pollution resulting in injury in a co-basin State must be considered from the overall perspective of what constitutes an equitable utilization.

Any use of water by a basin State . . . that denies an equitable sharing of uses by a co-basin State . . . is in violation of international law. . . . By parallel reasoning, a State that engages in a use or uses causing pollution is not required to take measures with respect to such pollution that would deprive it of equitable utilization.⁵⁹

The Uncertainties of Equitable Utilization

The step from the absolute territorial integrity doctrine to the reasonable man doctrine of equitable utilization was a considerable one.

⁵⁷ See 2 A. UTTON, WATER AND WATER RIGHTS 403-18 (1967).

⁵⁸ INTERNATIONAL LAW ASS'N, HELSINKI RULES ON THE USES OF WATERS OF INTERNATIONAL RIVERS (1967).

⁵⁹ *Id.*, art. X, comment (b).

In view of strong countervailing nationalistic pressures, its significance should not be underestimated. However, it is subject to significant criticism. Professor Bourne calls it "rather vague."⁶⁰ Professor Van Alstyne charges "that the same platitudinous quality which makes it so agreeable also makes it disturbingly vague and uncertain,"⁶¹ and that it is nothing more than an appeal to the international conscience.

The principle of equitable utilization certainly needs further elaboration, through the promulgation of more precise rules, both substantive and procedural, and by a body of interpretive judicial decisions. However, the generality of the concept is not the problem. In fact, the very strength of the concept is its elasticity—its lack of rigidity. In administering the water resources of a drainage basin, flexibility is preferable to a "corpus of rigid norms." Each drainage basin is a unique entity, and although the experience of one basin can be valuable to another basin, each basin has its own economic, geographic, ecological, cultural, and political variables; no comprehensive system of rigid rules can anticipate adequately the variables from basin to basin.

Rather than the generality of the concept, the prime weakness of the principle of equitable utilization is that it is an after-the-fact adjudicative approach. The Helsinki Rules are undoubtedly helpful in providing a framework of community expectations in the claim-response process of foreign office negotiations, and the rules will be helpful to tribunals in those few situations where the parties can agree to third party adjudication. Even so, judicial tribunals are not the best instruments for administering international drainage basins. They are largely *ex post facto*, and episodic, and what is needed far more than punishment after the fact is ongoing administrative machinery which will prevent inefficiencies before they occur.

Certainly a set of rules—the Helsinki Rules—is needed for the adjudication of disputes. But such adjudications are by definition after the fact, after the damage is caused. Even if some anticipatory injunctive relief were possible to prevent eminently threatened damage, it would still be administered on an *ad hoc*, case-by-case basis, and thus would be unlikely to provide adequate flexibility. What is needed is an administrative process, a basin authority which can supervise and make ongoing policy decisions toward efficient resource management. Perhaps

⁶⁰ Bourne, *International Law & Pollution of International Rivers & Lakes*, 6 U.B.C.L. REV. 115, 132 (1971).

⁶¹ Professor Van Alstyne actually was referring to the earlier term, "equitable apportionment." Van Alstyne, *International Law and Interstate River Disputes*, 48 CALIF. L. REV. 596, 617 (1960).

uniquely, the OMVS is endowed with this highly desirable planning and management authority.

International Administration of Drainage Basins

In the management of international drainage basins, the quest must be for a continuous policy which will make adjustments to changing conditions and new technology, provide ongoing supervision and enforcement, and make the best use of the resource. However, international institutions have not yet reached that stage of maturity. We have escaped from the absolutism of the Harmon Doctrine,⁶² but we have not yet reached the stage of international management. The OMVS is a striking exception and a splendid example to the world in the management of international water properties. No other international river basin scheme offers such promise.

Cano, in his study of Latin America, found that the treaties of South America, without exception, do not provide for joint ownership or joint management but rather "each country has retained its sovereignty and thus responsibility for administering those parts of the works situated on its side of the frontier."⁶³

The 1944 Rio Grande, Colorado and Tijuana Treaty⁶⁴ between the United States and Mexico established the International Boundary and Water Commission. Article 2 of the Treaty charges the Commission with:

The application of the present Treaty, the regulation and exercise of the rights and obligations which the two Governments assume thereunder, and the settlement of all disputes to which its observance and execution may give rise are hereby entrusted to the International Boundary and Water Commission . . .⁶⁵

The jurisdiction of the Commission operating as a whole is separate from that of each national section of the Commission. The jurisdiction of the full Commission is limited "to the limitrophe parts of the Rio Grande (Rio Bravo) and the Colorado River, to the land boundary between the two countries, and to works located upon their common

⁶² The Harmon Doctrine, expounded by former Attorney General Judson Harmon, holds that a state has absolute dominion over all waters within its territory. See Austen, *A Study of the History and Influence of the Harmon Doctrine*, 37 Can. B. Rev. 393 (1959).

⁶³ Cano, *Preliminary Review of Questions Relating to the Development of International River Basins in Latin America*, UNECOSOC REPORT, ECONOMIC COMMISSION FOR LATIN AMERICA, 8th Sess. (1959, UN Doc. E/CN 12/511 at 26).

⁶⁴ Treaty with Mexico, Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, February 3, 1944, 59 Stat. 1219 (1945), T.S. No. 994.

⁶⁵ *Id.* at art. 2.

boundary”⁶⁶ The Commission is empowered to make studies and recommendations and prepare plans for floodcontrol works and hydroelectric plants, but approval and actual construction of such projects are the responsibility of the two governments individually.⁶⁷ Article 24 authorizes the Commission to “settle all differences that may arise between the two Governments with respect to the interpretation or application of this Treaty, subject to the approval of the two Governments.”⁶⁸ Although the Commission performs valuable administrative functions such as the measuring and controlling of water flows, and has played an important role in resolving disputes, its powers to study and recommend are limited rather severely to such items as flood control and hydroelectric generation. It simply does not have the power to make and execute comprehensive policy for the management of the international river resources within its jurisdiction.

The Danube has had an international commission since the Congress of Paris of 1856. In spite of work in coordinating hydrologic services, flood control, hydroelectric planning, river inspection, navigation, and sanitation, the coriparians have read the convention narrowly and tied it principally to navigation. Stein concludes that on the Danube, to date, “riparian states coordinate with one another within their own reach of the river, rather than meeting as a collegial body to consider the problems of the Danube as a whole.”⁶⁹ Austria opposes international administration of the river because, as an upper basin state, she is “a major contributor of pollution flowing into Hungary. There are no waste treatment facilities in the capital city of Vienna, or in Linz . . .” and there will be none “until after 1980.”⁷⁰ The Soviets also oppose international administration of the Danube, “basing their position on the concept of sovereignty and sovereign equality. They consider that international solutions consist only of coordination of national policies.”⁷¹

And even between two countries with a long history of cooperation, with as much commonality of culture, economy and tradition as may be found in the world—the United States and Canada—we find in the 1972 Great Lakes Water Quality Agreement that, although the International Joint Commission is strengthened, its role is still largely restricted to coordination, monitoring, and surveillance. As Professor Bilder observes, “The Agreement’s concept and structure is still pri-

⁶⁶ *Id.*

⁶⁷ *Id.* at arts. 6 & 7.

⁶⁸ *Id.* at art. 24.

⁶⁹ LAW, INSTITUTIONS, AND THE GLOBAL ENVIRONMENT 269 (L. Hargrove ed. 1972).

⁷⁰ *Id.*

⁷¹ *Id.*

marily binational cooperation, rather than international regulation."⁷² The International Joint Commission has done important work; its contribution in pollution control should not be minimized. Professor Bourne calls the Commission "the best of its kind anywhere," but with its jurisdiction "strictly limited to investigation and recommendation" it has not been able to "stem the increasing deterioration" of U.S.-Canadian boundary waters.⁷³

Professor Bilder correctly concludes that "governments will be reluctant to subject their flexibility and freedom of action . . . to international constraints . . . [and] may often prefer loose cooperative arrangements. . . ."⁷⁴ Teclaff,⁷⁵ Ely, and Wolman⁷⁶ consider the establishment of supranational pollution control commissions to be utopian. Given that we have developed a set of customary international rules for dealing with river disputes on the basis of equitable utilization, but are not yet ready to accept international administration of river resources, where do we go from here?

With the collision courses being set by rising populations and advancing technology, we are rapidly approaching the juncture at which, for resource purposes, we must deemphasize national political borders and emphasize optimum use. Rather than speaking of equitable utilization, we should begin to argue for "optimal utilization." Rather than development which is "separate but equitable," we need development which is unified and optimal.

Artificial political boundaries rarely encompass the optimum areal unit for water resource utilization. For optimal utilization, the areal unit for development and administration of the resource must be determined by economic, ecologic, and geographic consideration rather than the cartographical vagaries of historical accident. It is too much to suggest that old traditions of nationalism will have to give way to the goal of optimal utilization? The OMVS offers hope for development which is both unified and optimal.

⁷² LAW, INSTITUTIONS, AND THE GLOBAL ENVIRONMENT 343 (L. Hargrove ed. 1972).

⁷³ Bourne, *supra* note 60, at 135.

⁷⁴ LAW, INSTITUTIONS, AND THE GLOBAL ENVIRONMENT 348-49 (L. Hargrove ed. 1972).

⁷⁵ Teclaff, *supra* note 4, at 348-49.

⁷⁶ A.H. GARRETSON, R.D. HAYTON & C.J. OLMSTEAD, *THE LAW OF INTERNATIONAL DRAINAGE BASINS* 126 (1967).